Community perspectives on the reintroduction of Eurasian lynx (*Lynx lynx*) to the UK

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Abstract

The potential for the reintroduction of Eurasian lynx (*Lynx lynx)* to the UK gained considerable attention in 2017 when the Lynx UK Trust announced their intention to apply for a licence to hold a controlled trial reintroduction of lynx in Kielder Forest, Northumberland, an application which was denied in 2019 by the then Secretary of State Michael Gove MP. The historical extirpation of large carnivores in the UK has resulted in communities, populations and landscapes with little or no experience of coexistence with large predators. Whilst charismatic carnivores have significant cultural symbolism and are often promoted as flagship species for conservation and rewilding, their reintroduction presents challenges for conservation and rewilding in practice, not least in terms of managing often vehement opposition. This article presents findings from the initial consultation process and considers the lessons learnt

from the methodological approach. In particular, while the incomplete consultation centred on a community-based approach, there were several factors which constrained public participation, information sharing and transparent communications integral to this. These are identified and explored here using qualitative data collected during the local consultation, with the intention of informing any similar reintroduction projects.

Key words: reintroduction; coexistence; rewilding; *Lynx lynx*; community consultation; human-nature relations; complex systems

Implications for practice:

- In social-ecological systems, the concerns of a community regarding a proposal are complex and can be related to various social, political or economic issues within that system, such as urban-to-rural migration, land ownership or nature connection.
- A comprehensive, collaborative, multidisciplinary feasibility study needs to be undertaken to inform decisions over a UK *Lynx lynx* reintroduction.
- For consultation to be genuine and truly collaborative, trust and transparency are of great importance, particularly where projects are controversial. Thoughtful, factual and concise communication is important to avoid misinformation and misunderstanding which may exacerbate mistrust.

Introduction

In the UK, there has been a growing interest in the reintroduction of keystone species, including apex predators, within recent years, encouraged in part by the awareness generated by the reintroductions of locally extirpated species such as the pine marten

(*Martes martes*) and Eurasian beaver (*Castor fiber*), as well as growing interest in the potential for highly interactive species to encourage ecosystem restoration and rewilding (Wilson 2004; Hetherington 2006). Contemporary public perceptions towards the reintroduction of apex predators into the UK is broadly favourable (Smith et al. 2015), and the Eurasian lynx (hereafter lynx) is thought to be the most suitable of native apex predators as it poses no threat to people and the potential for predation of livestock is 'low-level' (Angst and Breitenmoser 2003), though there are notably higher predation rates on sheep in Norway than elsewhere in Europe (e.g. 2 to 3 sheep per lynx per year in the Vosges Mountains of France and up to 10 in Norway, largely because sheep spend more time in woodland (Odden et al. 2013).

Lynx populations are recovering in Western Europe due to successful reintroductions and natural recolonization (Trouwborst 2010; Kaczensky et al. 2012), which is prevented in the UK due to its isolation from mainland Europe. Factors which caused the extirpation of the lynx in Britain in the 5th Century AD – including deforestation, declining deer populations and persecution (Hetherington 2006) – have been alleviated, and due to the over-abundance of deer species in the UK (Jobin et al. 2000; Odden et al. 2006; Basille et al. 2009), lynx could now thrive in a number of areas. The reintroduction of lynx gained considerable attention following developments towards an application for a controlled trial reintroduction by the Lynx UK Trust (LUKT).

The historical extirpation of large carnivores across many parts of Europe, especially in the UK, has resulted in communities, populations and landscapes with little or no experience of coexistence with large predators (Hetherington 2006; Heurich et al.

2012; Chapron et al. 2014). While charismatic carnivores have significant cultural symbolism (Hetherington 2006; Sergio 2006; Van Heel 2017) and are often promoted as flagship species for the wider conservation cause (Simberloff 1998; Andelman & Fagan 2000), the reintroduction of charismatic animals presents challenges for conservation practice, not least in terms of managing often vehement opposition (Arts et al. 2012).

Species reintroductions were traditionally quantified in terms of ecological success (Griffith 1989) but it has become increasingly apparent that public concerns regarding translocations need to be addressed (Marshall et al. 2007; O'Rourke 2014) and that successful conservation projects require effective integration of the immediate society (Mascia 2003; Breitenmoser & Breitenmoser-Würsten 2004). It is now accepted that in addition to ecological research, reintroduction outcomes are determined by the attitudes and behaviour of the public and regional stakeholder groups (Marshall et al. 2007; Thirgood & Redpath 2008) and public consultation is now integrated into the IUCN reintroduction guidelines (IUCN/SSC 2013).

In October 2015, the LUKT announced their proposal for a 'controlled, scientific and monitored trial reintroduction of lynx' to England and/or Scotland. At that stage, broad public support had been identified through a national survey (Smith et al. 2015). The LUKT proceeded by establishing feasibility, risks, impacts and potential mitigation measures (Smith et al. 2016a & b) and by consulting with relevant national organisations, seeking feedback on project desirability and feasibility, socio-economic and ecological considerations, and the identification of a suitable trial location (Smith et al. 2016c). As a result of this consultation process and further socio-ecological

focussed work on potential release sites, the Kielder Forest area, an extensive forest block that straddles the border between England and Scotland, was identified as the most suitable location for further investigation (White et al. 2016a, see also Ovenden 2019).

As a result, a local consultation, centred on a community-based approach, was conducted in the Kielder area between August 2016 and April 2017 as a precursor to a project licence application being submitted to Natural England and Scottish Natural Heritage by LUKT. This article considers data collected during the local consultation process. The data was collected with the intention of examining community attitudes towards the proposed reintroduction in order to inform ongoing consultation activities. The aim of this article is to present themes relating to community attitudes towards the reintroduction and to identify factors which constrained public participation, information sharing and transparent communication integral to a community-based approach. We go on to discuss the lessons learned based on the setbacks we encountered. It should be noted that the consultation team were unable to complete planned activities due to a conflict of interest with LUKT management and therefore the available data relate to incomplete plans. However, the data offer some extremely useful insights and point to a number of factors which should be considered in consultations of this kind, especially as there is continued interest in a lynx reintroduction in the UK (Horton 2020; Bliss 2019).

Convery et al. (2017) reported on the consultation activities and recommended that a licence application at that time would be premature and would threaten the longer-term viability of the project. Despite this recommendation, LUKT submitted a licence

application in 2017. The licence application was supported by a project plan which positioned the reintroduction within legal and policy frameworks, a statement of the project rationale and a list of reports as appendices including national consultation reports (Smith et al. 2015a & 2016c), cost-benefit analyses (White et al. 2015), a site selection report (White et al. 2016a) and a disease risk assessment (Mayhew et al. 2017, unpublished). The application was denied by Michael Gove in 2018 (DEFRA 2018).

Methods

Consultation activities were conducted between August 2016 and May 2017, led by a team from the University of Cumbria with assistance from Clifford Chance, AECOM and local volunteers. The main aim of the local consultation was to incorporate stakeholder opinion into the decision-making process and co-develop project management, particularly in relation to compensation schemes for livestock predation. In order to achieve this, a number of methods were used to build a network of contacts, share information, record and/or address any initial concerns and collect data on perceived risks and benefits. The consultation process was flexible and was adapted as new data became available. Spatially, a zoned approach to consultation work was adopted, comprising a primary and a secondary zone (Figure 1). The primary zone comprised communities or individuals identified as most likely to be affected, either directly or indirectly, by the presence of the lynx. The surrounding secondary zone included communities less likely to be affected but who should nevertheless be engaged with and given the opportunity to respond to the consultation process. The methods and results reported below relate specifically to data used in this

149 article. For the overall consultation plans, methods and results see Convery et al.
150 (2016, 2017).
151 Three methods of data collection were used during the consultation process to provide
152 the data used in this study, namely a risks/benefits questionnaire, Q methodology
153 (QM) and notes taken at public meetings. Blanket ethical approval was granted by the
154 University of Cumbria's ethics committee, covering all consultation activities.
155 *Risks/benefits questionnaire*
156 The risks/benefits questionnaire was developed in order to provide a 'snapshot' of
157 key community concerns and to feed into the development of the QM data
158 collection as well as other consultation and project plans. The questionnaire asked
159 respondents to list, in open-ended fields, what they believed to be the key risks and/or
160 benefits of a trial reintroduction of lynx. The questionnaire also captured some
161 demographic data, asked if respondents were willing to be contacted further in
162 relation to the consultation and contained an open field for 'any further comments.'
163 In total, 130 questionnaires were completed, either by the respondents themselves at
164 LUKT events or by LUKT volunteers on behalf of respondents during door-to-door
165 activities (Table 1). Table 2 provides summary demographic
166 information for questionnaire participants alongside 2011 demographic data for the
167 Bellingham ward (Northumbria County Council, 2011), which includes the Kielder,
168 Tarset and Greystead communities. The gender split for the sample is very similar to
169 the ward average so we have focused on age cohort representativeness. A thematic
170 analysis was undertaken to group the key risks and benefits according to respondents'
171 comments.
172
173 *Q methodology*

174 QM is a research tool designed to explore individual values, opinions and beliefs
175 regarding a specific subject area. It is particularly useful in community engagement
176 with smaller groups and has proven useful in identifying 'common ground' in conflict
177 management situations and in capturing interesting, informative and relevant
178 viewpoints relative to the question (Watts and Stenner 2012). QM typically involves a
179 60-90 minute interview where the participant ranks a set of statements relevant to the
180 topic depending on how strongly they feel about each. Factor analysis is then used to
181 interrogate the data set.
182 The intention was to undertake a QM study to provide greater data depth (alongside
183 the questionnaire survey work and public meetings). The 40 Q statements (Table S1)
184 were developed from responses to the national public survey (Smith et al. 2015) and
185 the local questionnaire, as mentioned above. QM participants were recruited using
186 data collected through the questionnaire which contained a section for respondents to
187 express interest in being involved in ongoing activities. A total of 25 interviews and
188 QM sorts were undertaken prior to the point where we were unable to continue with
189 consultation activities. All participants were resident within the primary zone (figure
190 1), and were a range of ages but primarily over 65 years (n = 12). Participants offered
191 a wide range of views in terms of support for the project, including those who were
192 very supportive and very against. Their occupations included those who are retired
193 (n=11), a student, tourism-related activities (n=6), other business owners (n=4), a
194 forest surveyor, a huntsman and a farm vet. It is worth noting that none of the
195 participants were directly involved in farming, although one is a retired farmer and
196 one lives on a farm. It is recommended that a Q study includes approximately 40 to 60
197 participants (Watts & Stenner 2005, 2012), and therefore we were unable to conduct a
198 full factor analysis and complete the study. Therefore, the focus of this article is on

the qualitative data collected in the QM interviews rather than on the factor analysis. During each interview, the participant was first asked to sort the 40 statements into three piles – agree, disagree and neutral. The participant was then asked to place each statement on a symmetrical Q grid, containing 40 spaces on a scale from -5 to +5 indicating a scale from 'Most disagreed' to 'Most agreed' with a neutral (0) column in the middle. Once the sort was completed, participants were asked to elaborate on the statements they felt strongly about and encouraged to add any comments they wanted to. This qualitative data was recorded, anonymised and transcribed. A thematic analysis was undertaken on the qualitative interview data to extract evidence of the participant's concerns relating to the proposed reintroduction and factors which constrained public participation. The Q sort data is presented in Table S1.

Notes from public meetings

Notes were taken during the question and answer sessions at the four open public meetings organised by the consultation team (Table 3). A thematic analysis was undertaken in order to extract evidence of public concerns relating to the proposed reintroduction and factors which constrained public participation.

Results

The results presented here focus on community attitudes to the proposed lynx reintroduction. To create a snapshot of responses from the risks/benefits questionnaire we grouped comments into themes under risks (15 themes) and benefits (9 themes) (Figure 2 and 3). Community members were given the opportunity to elaborate more fully on these themes during meetings and in QM interviews.

As the consultation progressed, one risk that began to emerge from the risks/benefits questionnaire was that of divisions in the local community (Figure 2). We note that the below themes attracted polarised views which may have exacerbated this.

224

225 *Farming*

226 Our data reflects that hill farming forms an integral part of the culture, economy,
227 landscape and overall sense of place in the Kielder area. Consequently, this theme
228 was prevalent throughout the consultation process and was a talking point among
229 almost all participants, whether for, undecided or against the proposed trial
230 reintroduction.

231

232 Given the risk of lynx-related livestock predation, the farming community was
233 considered by project partners as a key stakeholder group with which to engage.
234 However, during the early stages of the local consultation, members from the farming
235 community expressed their disapproval of the project by refusing to talk to team
236 members at door-to-door visits or by voicing their anger at public meetings. Common
237 themes expressed by farmers at public meetings included a lack of trust and
238 transparency in the LUKT, the potential for lynx to threaten their livelihoods and the
239 need for a compensation scheme, the inability of farmers to control growing lynx
240 populations and a sense of disempowerment that the reintroduction would be imposed
241 on them regardless of their views.

242

243 Risks listed on risks/benefits questionnaires were predominately focused around risks
244 to farming (Figure 2). This theme includes comments related to '*risks to livestock*'
245 (including predation and worrying), negative impacts on farmer livelihoods, risks that
246 compensation will not be easily accessible and the impacts on farmer workloads due
247 to compensation or mitigation measures.

248

While this theme was prevalent throughout the consultation, the QM study showed polarity in support for farmers. During QM sorts there was strong agreement for the statement 'I am concerned that lynx will be a threat to livestock during the trial', although a number of participants disagreed (Table S1, statement no 8). There is a wider range of responses to the statement 'I am concerned that the lynx will cause economic suffering to farmers and/or countryside managers' (Table S1, statement no 9). It became clear that this division was largely based on the polarity of views around farmers' rights, land ownership and land use. Those who were supportive of farmers made efforts to justify their concerns, highlighting that farming is not just about money, farmers care passionately about their livestock or that 'a lot of farmers in this area are very much on the edge of being able to earn a living.' Others showed displeasure over how dominant farming is in the area, particularly in decision-making, citing 'the intransigence of the NFU [National Farmers' Union]', that farmers in the area are a minority and the large subsidies they receive.

These two examples extracted from QM interviews summarise some of these arguments:

> '*I think there's a lot of the people in this area who are not farmers born and bred and not closely connected with that culture, there's quite a number of them that already don't quite fit in and don't understand, and don't accept that they are coming in to one of the biggest factories there is – a mutton and lamb producing factory.*' (QM participant 16, primary zone)

in comparison to:

> *'I think your project has highlighted the notion that those that farm the land should be able to dictate what goes on everywhere. It's an outdated sense of ownership that they have over the*

landscape and it doesn't exist in our modern classless society… I think most sections of the community are for it, it's just some of the lobbyist movement that represents the farmers and landowners is so vocal and very organised, to the point that they will intimidate everybody else into either not speaking or coming forward, or towing the line with their views. And it's with threats and intimidation.' (QM participant 3, primary zone)

Where there is agreement across all parties is for the importance of compensation payments (Table S1, statement no 12). Those who were less supportive of farmers saw the value in compensation as a method for protecting the welfare of the lynx, but several participants raised concern over the possibility of corruption around compensation claims or issues with management and enforcement of a compensation scheme.

Welfare of the lynx

One theme that was widely supported according to the data is the welfare of the lynx (Figure 2), with concerns over lynx being harmed in road traffic accidents, an *'increase in illegal poisoning'* (questionnaire respondent) and the risk that farmers might *'club together to shoot lynx'* (questionnaire respondent). It is worth noting that during door-to-door activities there were a small number of very unsupportive community members who refused to interact with volunteers and who threatened to shoot or kill lynx. Two concerns were raised in relation to lynx welfare during QM interviews; conflict with farmers and the impact on individual lynx by the project itself, ie bringing healthy lynx into unsuitable habitat and the potential for wild lynx to end up in captivity or be exterminated if the trial was unsuccessful.

Tourism

On risk/benefits questionnaires the potential for tourism and related economic benefits was a predominant benefit (Figure 3), with the potential to *'put Kielder on the map as a destination'.* Interestingly, there was largely neutral response in the QM study to the statement 'Having lynx in this area would help put Kielder on the map' with many citing that, 'it's already on the map' due to existing attractions such as designation as an International Dark Sky Park (Table S1, statement 31).

However, others thought that the case for tourism was overstated or that tourists would cause problems locally by *'clogging up the roads.'* Simultaneously there were concerns that the reintroduction would '*scare tourists off'*.

This polarisation was reflected in the QM sorts with both strong agreement and disagreement for the statement 'Lynx could beneficially add to the rural economy through eco-tourism' (Table S1, statement no. 13). Those that disagreed with the statement could not see the potential for tourism due to the shy nature of lynx:

> *'Certain people go on and on about millions of pounds coming into the community but we can't see how or why. And certain people don't want thousands of people streaming in. It's supposed to be a national park that's quiet and peaceful and not too busy. There is a balance between people who want tourists and people who don't.'* (QM participant 1)

Ecosystem or biodiversity restoration

The potential for ecological restoration was recognised by some. Environmental benefits listed on the risks/benefits questionnaires (Figure 3) largely focused on the '*overall benefit to the ecosystem'* and the potential of lynx to act as '*an ecosystem engineer, improving the quality of native woodland.*' The potential to control numbers

of other species, such as fox, was also mentioned. There was also emphasis on returning a native species and the potential '*to increase biodiversity, Kielder is a monoculture'*.

However, those opposed to the trial felt that the number of lynx would be too low to have any real ecological impact. Comments also included concerns over '*interfering with nature*', such as '*every time man interferes in ecosystems there are unexpected side effects and more times than not they are unwanted'*.

There was more disagreement than agreement over the QM statements, 'the presence of lynx is crucial for the health of forest's ecosystems' (although there were comments from supportive participants that the word 'crucial' was not appropriate; Table S1, statement no. 1) and 'lynx should be introduced as a natural control of deer' (Table S1, statement no. 4), while there was more strong agreement with the statement 'We have an obligation to try and restore our natural ecosystem as much as possible. The trial is one step towards that' (Table S1, statement no. 24).

Habitat suitability

There were conflicting views over whether Kielder would provide suitable habitat for the lynx. The QM sorts indicated there was strong disagreement for the statement 'I do not think this area is suitable for the lynx' (Table S1, statement no 28), indicating that some people felt the habitat in the Kielder area may be suitable. One participant commented:

> '*I'm quite passionate about the introduction of wild species into our landscape. I think it has to be a suitable landscape, and I think here, in and around Kielder, we should really be proud that we have a landscape where they can be reintroduced.'* (QM participant 3)

However, this contradicted some concerns raised in the questionnaires about plantation forests being unsuitable habitat for lynx, as well as other comments made during the accompanying interviews, such as:

> '*It seems to me that there isn't enough space for them to survive, it's not a very attractive place to be honest, very thick horrible forest and… so dense nothing could possibly live in there*.' (QM participant 7)

At a larger scale, there was conflict over the statement 'the British countryside is no longer a suitable place for a sustainable lynx population' (Table S1, statement no 2), although more participants disagreed than agreed with it. The interviews suggested that those in agreement were not necessarily against the proposed reintroduction, but felt the British countryside was generally in a bad condition for wildlife. Many comments emphasised the need to reform and restore nature, and along with it people's perception of nature.

Perception of 'wild' nature

There was polarity in the perception of 'wild' nature, with supporters of the project recognising the intrinsic value of restored nature – the *'cultural/spiritual effects of a rewilded landscape'* as well as *'a sense of the wild'*.

376 *'I'm really passionate about the fact that it would create an exciting sense of wilderness… I also*
377 *think it's important in terms of ecosystems and landscape management to actually have wild*
378 *space and everything that goes with it.'* (QM participant 3)
379
380 This seems to corelate with those who feel it necessary to restore ecosystem function
381 (as mentioned above), that nature can offer 'natural controls' for example on deer
382 populations. On the other hand, opponents of the project raised concerns over
383 uncertainty and over lynx being '*wild animals*' that are difficult to control (Figure 2;
384 Table S1, statement no. 18). There was minimal fear for human safety (Table S1,
385 statement no. 22), but some fear over a threat to pets (Table S1, statement no. 33) and
386 to native wildlife, with red squirrels most frequently mentioned, along with the
387 Kielder wild goat population, ground-nesting birds and the recently reintroduced
388 water voles (Table S1, statement no. 6). However, supporters of the project were less
389 concerned about pets and native wildlife, commenting that potential predation is 'just
390 the natural way of things.'
391
392 ## *Concerns over project and consultation management*
393 Due to the high-profile nature of the project within the community, the consultation
394 process itself was under intense scrutiny and became a talking point among
395 community members. Concerns were raised regarding consultation activities and
396 various aspects of the project plan, including the number of lynx being reintroduced,
397 funding and methods used including lack of transparency, misinformation, the
398 personalities involved and a feeling that the 'project is being imposed on us';
399

> *'I object to your patronising and high-handed methods in trying to force your project onto the community. I'm not confident that your consultation or research are impartial.'* (Meeting attendee)

Risks to the '*reputation of conservation in general*' and the '*potential to prevent future reintroductions of lynx or other species*' were also raised.

Throughout activities, there was agreement among members of the community over the need for scientific rigour and transparency over plans and decision making. In QM sorts, for example, importance was placed on the 'use of biological data and sound science in this trial of introducing lynx' (Table S1, statement no 7) and that 'all aspects of the trial must be transparent and open for all' (Table S1, statement no 19).

Discussion

The preliminary findings presented in this paper speak to the polarised nature of the debate around a trial lynx reintroduction in the UK. Strong opinions, both for and against, were held by community members which demonstrate a strong emotional component. While this discussion has focused largely on the negative aspects of the consultation process, there was also evidence of support, and a change in consultation strategies saw the beginnings of constructive, informative dialogue particularly through focused business and farming meetings and QM interviews. The thematic issues and concerns presented in the results section provide a possible structure around which any future lynx reintroduction initiative might approach conversations with stakeholder groups. Most importantly, communities should be fully represented in decisions and solutions to the issues they themselves have highlighted. As Coz and Young (2020:1) note, it is important that consultation processes go beyond

environmental impacts and social perception and seek meaningful engagement involving 'all actual and potential stakeholders to agree on broad and long-term conservation plans at the landscape scale'. However, Nimegeer and Farmer (2016) provide a warning that involving rural communities in decision-making can serve to enhance the power of existing elites rather than uniting diverse perspectives, as such rural places might bring a specific set of engagement challenges.

Polarising community views

Attitudes towards the trial polarised communities within the consultation area, with conflicting views in particular over farmers' rights and land use, the potential benefits of tourism, and perceptions of nature and its place in the landscape. Woods et al. (2012) describe urban-to-rural migration and diversification of economic activity in rural areas as potential causes for this type of conflict, and whilst it is problematic to over-generalise (Burnett 1998; Woods 2005), there are often tensions between what might be broadly termed more 'progressive income attitudes' and 'traditional rural values'. Bennett (1998) states that the incomer is overwhelmingly constructed as a negative influence or a threat to traditional values, and is portrayed as 'outside' of and in opposition to 'things local'. Similarly, Black et al (2019) note that some community members employ discourses of rural localness, authenticity and tradition to augment their credibility and gain influence over the newly arrived 'incomers'. Proposing to reintroduce a carnivore within this context may have exacerbated such divides and may, to some extent, explain the entrenched, extreme views we encountered. As discussed earlier, whilst consultation planning should seek meaningful engagement with all actual and potential stakeholders (Coz & Young 2020), it is also important to be cognisant of local power relationships and the often

451 difficult engagement challenges associated with rural communities (Nimegeer &
452 Farmer 2016).
453
454 A key area of community agreement in relation to farming was the need for a
455 compensation scheme to be agreed prior to any lynx release. This was a stated
456 objective of the LUKT project, and Mansfield et al. (in prep.) discuss this area of the
457 project in more detail, including how compensation might be addressed in future
458 projects. It is noted, however, that there is conflicting evidence in the literature that
459 economic incentives can be used to increase tolerance for predators and protect them
460 from poaching. For example, Treves and Bruskotter (2014) highlight how social
461 change should also be considered alongside the delivery of economic incentives or
462 compensation.
463
464 Increased tourism is often cited in the literature as a potential benefit of species
465 reintroduction or rewilding projects (e.g. Rewilding Europe 2020; Cerqueira et al.
466 2015; Arts et al. 2012), but our data indicate mixed feelings amongst respondents
467 regarding any increase in tourism to the area, and any claims of tourism-related
468 benefits would need to be managed very sensitively by any future reintroduction
469 project.
470
471 Unlike much of mainland Europe, the UK has existed without large carnivores for
472 hundreds of years. IUCN Guidelines 5.2.5 (IUCN 2011) state that 'if extinction in the
473 proposed destination area occurred long ago, or if conservation introductions are
474 being considered, local communities may have no connection to species unknown to
475 them, and hence oppose their release. In such cases, special effort to counter such

476 attitudes should be made well in advance of any release.' These attitudes are complex,
477 and related to broader emotional, political and socio-economic issues which also need
478 to be addressed if humans are to coexist with carnivores in shared landscapes. There
479 is evidence that such 'mediated co-existence' has worked reasonably effectively for
480 predator conservation in a European context (Chapron et al. 2014), and Di Minin et al.
481 (2016) highlight the need to promote carnivore persistence outside of protected areas.
482 A fear of uncertainty and lack of control is often associated with the reintroduction of
483 large carnivores (Carter & Linnell 2014), and this is something we encountered
484 during fieldwork. This risk intolerance is a major challenge to coexistence (Carter &
485 Linnell 2014), as is the perception of nature or the 'animal' as being 'out-of-place' or
486 'improper' (Buller 2014). Gehr et al.'s (2017) 'landscape of coexistence' suggests
487 that apex predators will change their behaviour and avoid human contact, and
488 Chapron et al. (2014) have demonstrated that in Europe, people and large carnivores
489 can coexist. However, the evidence is that this requires collaborative,
490 multidisciplinary effort in order to explore, evaluate and operationalize coexistence
491 (Buller 2014; Carter & Linnell 2014).
492
493 Carter and Linnell (2016, p. 575) define coexistence as 'a dynamic but sustainable
494 state in which humans and large carnivores co-adapt to living in shared landscapes
495 where human interactions with carnivores are governed by effective institutions that
496 ensure long-term carnivore population persistence, social legitimacy and tolerable
497 levels of risk'. Understanding the constituency and governance of these 'effective
498 institutions', and identifying ways of working collaboratively with them, seem
499 important for any future lynx project. Such work might focus on understanding and
500 agreeing tolerable level of risk in terms of livestock depredation, competition with

hunters and attacks on humans, rather than attempting to convince the community that there is low or no risk. It is interesting to note that the welfare of the lynx was a stated concern by respondents both for and against the project, and both groups made attempts to incorporate animal welfare into their respective arguments, for example by noting that the habitat in Kielder would be 'sub-standard' or that the presence of lynx might encourage illegal hunting. Animal welfare issues may offer common ground for any subsequent project.

Misinformation and communication difficulties

During early stages of the consultation, discussions at open public meetings were dominated by those who had very strong concerns, which were often expressed in anger, and mutually informative discussions often became impossible. The initial introduction of the project to the community at the public meeting in Kielder was particularly heated, with strong representation from the National Sheep Association at both a national and local level. Comments in the press (Hexham Courant 2016) and from members of the public throughout the consultation indicate that this event set the tone for much of the consultation process and it was difficult to overcome the hostility generated by it, which played a significant part in slowing progress towards consultation aims.

Smaller meetings were more effective and inclusive, including meetings focused on specific stakeholder groups, as were discussions during door-to-door visits, but the amount of resource needed to undertake this exercise meant that progress was slow and all homes were not visited. However, data collected through questionnaires during these activities did highlight risks which were useful in planning the ongoing

526 consultation and informing the plan for the trial reintroduction (Convery et al. 2017).
527 In hindsight, focused contact with individual stakeholders and small groups would
528 have been more suitable at the start of the process.
529
530 There was a perceived lack of information being communicated about the proposal
531 and the sense of the project being imposed from outside the community. Berkes
532 (2004) highlights the importance of incorporating local knowledge and perspectives
533 along with scientific information in community-based conservation. Throughout the
534 consultation, evidence from Eurasian lynx present in Europe was used, for example
535 on sheep predation (White et al. 2015) and increased ecotourism (White et al. 2016b),
536 to inform the community on potential impacts of the proposal. There is, however,
537 evidence that such a scientific knowledge-based approach can lead to alienation of
538 stakeholders and increased lobbying against reintroductions, resulting in polarisations
539 between a "science-based technocratic worldview, and its 'populist' counterpart that
540 portrays local actors as the victims of external intervention" (Arts et al. 2012).
541 Similarly, Von Essen (2017) highlights the challenges that 'contested knowledge'
542 creates in controversial species reintroductions. Using the example of wolf
543 reintroductions in Sweden, she demonstrates how scientific knowledge can be viewed
544 as hegemonic and patronising from the perspective of rural residents and she argues
545 for a public platform of communication.
546
547 Several probable causes for perceived misinformation were raised by community
548 members during the consultation, including unsuitable communication methods used
549 in consultation leading to misinterpretation of information presented, and
550 misinformation being spread by different parties. The miscommunication of the level

551 of local support in local (Hexham Courant 2017) and national press (for example
552 Halliday & Parveen 2017) further exacerbated these concerns.
553
554 A further obstacle in creating avenues for disseminating information that reinforced
555 the purpose of the trial was that many supporters felt unable to express their support.
556 This further exacerbated the slow progress with the consultation and made it difficult
557 for those undertaking the consultation work, as well as members of the community, to
558 get an accurate picture of the level of support for the trial. This has eventually resulted
559 in the creation of the "Friends of the Lynx" group (Convery et al. 2017).
560

561 *The need for genuine and transparent consultation*

562 The importance of understanding and incorporating social impacts in conservation has
563 long been established (Kaplan-Hallam & Bennet 2017) and are integral to the IUCN
564 Guidelines for Reintroductions and Other Conservation Translocations (IUCN/SSC
565 2013). The main focus of this work has been to examine community attitudes towards
566 the proposed reintroduction. However, although the consultation plan centred on a
567 community-based approach, there were several factors which constrained public
568 participation, information sharing and transparent communications integral to this
569 (Arts et al. 2012; IUCN/SSC 2013). In this paper we have discussed many of the
570 issues which may have fostered disagreement and conflict concerning the proposed
571 lynx reintroduction to Kielder, and we have highlighted some key challenges that
572 need to be addressed by any subsequent lynx reintroduction initiative. Central to this
573 is the need to find common ground with communities where there are likely to be
574 conflicting values and priorities, and the early engagement of all 'actual and potential
575 stakeholders' (Coz & Young 2020) in project development and design is

576 fundamentally important; communities should be fully represented in decisions and
577 solutions to the issues they themselves have highlighted [whilst also noting Nimegeer
578 and Farmer's (2016) concerns regarding power relationships within rural communities
579 and how this might affect processes and outcomes of community participation]. There
580 needs to be a genuine desire to collaborate with all stakeholders in order to overcome
581 cultural and/or ecological challenges, and to develop context-specific management
582 practices and institutional arrangements based on evidence from successful large
583 carnivore projects elsewhere in Europe (Chapron et al. 2014). Encouraging local,
584 grassroots leadership for future projects, together with transparency and trust in
585 sources of information, could help to reduce the uncertainty that a reintroduced
586 species can create in a social-ecological system.
587
588 The view that genuine, transparent consultation is required is shared by
589 Northumberland National Park, who in their response to Natural England
590 (Northumberland National Park Authority 2018) noted that '*a recent report by the*
591 *University of Cumbria authored by some of the people who undertook the*
592 *consultation also suggests that there has been insufficient consultation with the local*
593 *community and co-development of plans should take place with local people'*
594 (Convery et al. 2017). Similarly, in the Natural England guidance to Secretary of State
595 Michael Gove MP's eventual decision, they note that *'consultation with national and*
596 *local stakeholders was undertaken and this initial work was robust, carried out by*
597 *competent consultants and reported. Further engagement with the local community,*
598 *recommended in the consultants' report, was not followed up and involvement with*
599 *landowners and the local community has been a concern throughout.'* (DEFRA
600 2018).

Identifying and understanding the structure of a community to work with is challenging and, as Berkes (2004) indicates, community-based conservation 'failure' may be due to the implementation rather than any weakness or impracticality of the concept. Clear devolution of authority and responsibility (Songorwa 1999; Murphree 2002) is vital alongside identifying the scale appropriate (Berkes 2004) in a multi-stakeholder environment. Such an approach takes time, commitment and honesty, and is often messy and complex, but ultimately necessary for conservation success.

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GLASGOW
Kilmarnock
Ayr
Dumfries
Carlisle
Penrith
Keswick
Whitehaven
Workington
Cockermouth
Douglas
Barrow-in-Furness
Morecambe
Heysham
Lancaster
Berwick-upon-Tweed
Jedburgh
Hawick
Galashiels
Peebles
Melrose
Kelso
Coldstream
Alnwick
Morpeth
Ashington
Blyth
Tynemouth
South Shields
Sunderland
NEWCASTLE UPON TYNE
Gateshead
Hexham
Durham
Hartlepool
Stockton-on-Tees
Middlesbrough
Darlington
Bishop Auckland
Brough
Windermere
Kendal
Ambleside
Coniston
Richmond
Scotch Corner
Thirsk
Ripon
NORTH YORKSHIRE
YORKSHIRE DALES
THE PENNINES
NORTHUMBERLAND
SCOTTISH BORDERS
TWEED VALLEY
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SOLWAY FIRTH
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Maryport
Workington
Whitehaven
Keswick
Penrith
Appleby-in-Westmorland
Kirkby Stephen
Sedbergh
Kirkby Lonsdale
Settle
Skipton
Ilkley
Otley
Harrogate
Ripon
Northallerton
Thirsk
Helmsley
Pickering
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Saltburn
Guisborough
Peterlee
Seaham
Consett
Stanley
Whitley Bay
Newbiggin-by-the-Sea
Amble
Rothbury
Longhoughton
Seahouses
Holy Island
Belford
Wooler
Etal
Norham
Lauder
Gattonside
Selkirk
Innerleithen
Biggar
Douglas
Lanark
Carnwath
Forth
Dunsyre
Penicuik
Gorebridge
Grantshouse
Duns
Greenlaw
Kelso
Melrose
Galashiels
Peebles
Lauder
Coldstream
Norham
Etal
Belford
Wooler
Seahouses
Holy Island
Northumberland Coast
Longhoughton
Alnwick
Amble
Rothbury
Morpeth
Ashington
Blyth
Whitley Bay
Tynemouth
South Shields
Sunderland
Seaham
Peterlee
Newbiggin-by-the-Sea
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Ayr
Prestwick
Irvine
Troon
Paisley
East Kilbride
Kilmarnock
Galston
Mauchline
Tarbolton
Douglas
Lanark
Carnwath
Forth
Dunsyre
Penicuik
Gorebridge
Grantshouse
Duns
Greenlaw
Lauder
Gattonside
Selkirk
Innerleithen
Biggar
Peebles
Galashiels
Melrose
Kelso
Coldstream
Norham
Etal
Belford
Wooler
Seahouses
Holy Island
Berwick-upon-Tweed
Jedburgh
Hawick
Alnwick
Longhoughton
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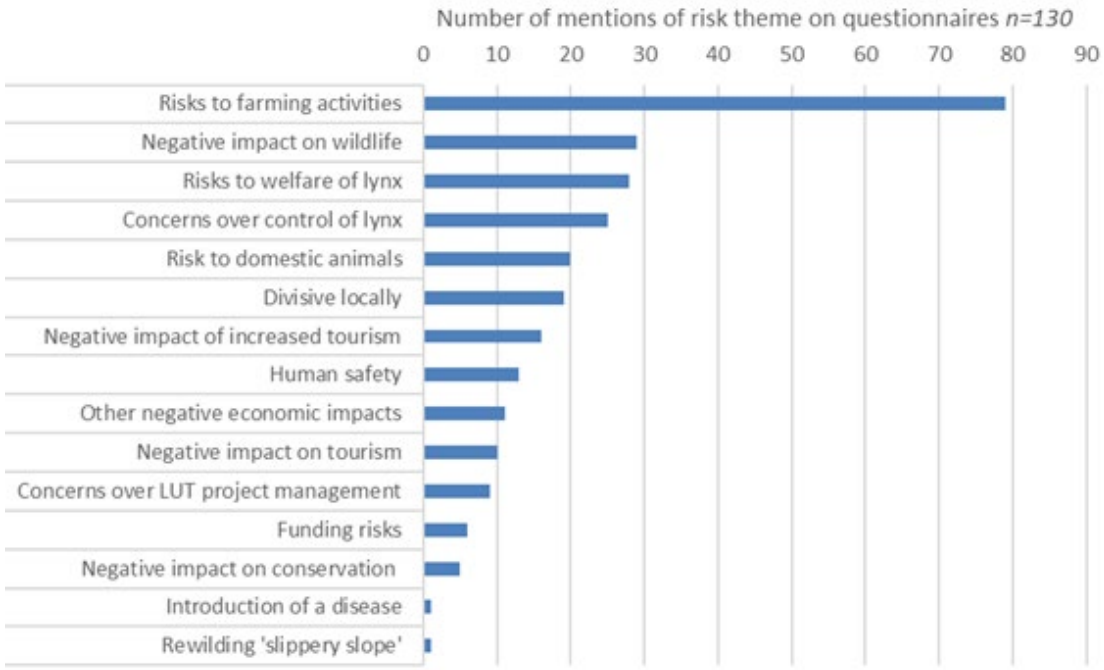

Figure 2: ***Key risks raised on community questionnaires.***

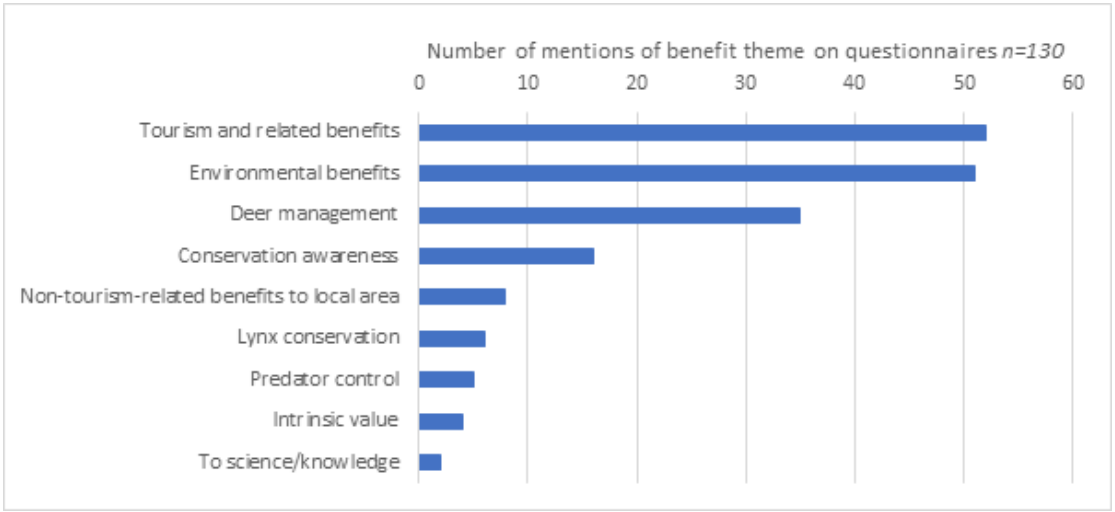

Figure 3: ***Key benefits raised on community questionnaires.***

Table 1: Source of risks/benefits questionnaires

Questionnaire source	Number (*n*=130)
Door-to-door activities	86
Open meeting: Tarset	5
Open meeting: Newcastleton	3
Open meeting: Langholm	7
Presentation: Borders Natural History Society	17
Presentation: Bellingham Business Forum	12

822

823 **Table 2: Questionnaire demographics (including comparative demographics for**

824 **Bellingham Ward)**

LUKT Kielder Sample				Bellingham Ward
Gender		**Age group**		**Age group (%)**
Male	67	Under 16	1 (0.8%)	14.9
Female	61	16-24	3 (2.3%)	8.1
Unstated	2	25-34	15 (11.5%)	8.3
		35-44	7 (5.4%)	12.3
		45-54	15 (11.5%)	17.8
		55-64	34 (26.2%)	16.5
		65+	42 (32%)	22.1
		Unstated	13 (10%)	

825

826 **Table 3: Details of consultation meetings which resulted in data in the form of**

827 **meeting notes from question and answer sessions**

Meeting (zone)	Date	Number of attendees
Kielder open meeting (primary)	11 August 2016	~60-80
Newcastleton open meeting (secondary)	30 November 2016	~20-30
Langholm open meeting (secondary)	12 January 2017	~20
Tarset open meeting (primary)	1 February 2017	~50-60

828

829 **Table S1: Q statements their scores based on where participants placed them on**
830 **the Q grid.**